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ABSTRACT

An optomechanical mounting includes an upper set of balls and a lower set of balls that support and secure a sphere containing an optical element. The materials in the mounting have the same or nearly the same coefficient of thermal expansion and the balls provide opposing radial forces so that thermal expansions are compensated, giving the mounting superior thermal stability. Frictional forces on the sphere from the upper and lower set of balls maintain the orientation of the sphere (and the optical element) during operation, but smooth surfaces of the sphere and balls still permit sensitive, precision rotation of sphere for alignment without post-alignment clamping of the sphere.